Case Report

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Laparoscopic management of a newborn with a right Amyand's hernia and a left incarcerated inguinal hernia

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SUMMARY

A one month old boy presented with left incarcerated inguinal hernia. After unsuccessful manual reduction, we decided to perform laparoscopic herniorrhaphy. Laparoscopic examination showed a left hernia with intestinal loops that entered into the internal inguinal ring, on the right side there was an unknown patency of the peritoneal vaginal duct with the appendix completely incarcerated within the sac. On the left side, the loops were reduced with a combined technique of external manual pressure and internal pulling by forceps; the bowel was inspected, and the hernia was repaired. On the right side, the appendix was strongly adherent with the peritoneal vaginal duct, and the reduction was not possible. The appendix was dissected from the sac using a 3-mm monopolar hook and than reduced into the abdomen, then right herniorrhaphy was performed. Two days after surgery, the baby had fever and abdominal distension. He was re-operated through mini-Pfannenstiel incision and an ischemic appendix was identified and removed. Postoperative period was uneventful. In our case, laparoscopy allowed for simultaneous reduction under direct visual control, inspection of the incarcerated organ, definitive repair and incidentally discovery and treatment of the contralateral incarcerated Amyand's hernia. In case of incarcerated appendix, appendectomy is preferable during the same procedure to reduce the incidence of postoperative complications.

Key words: Amyand's hernia, incarcerated hernia, inguinal hernia, laparoscopy, newborn

INTRODUCTION

Laparoscopy has been utilized for the diagnosis and/or treatment of pediatric inguinal hernias since the1990s.[1]

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However, scanty reports exist about the laparoscopic treatment of inguinal hernia in young boys under one year of age and in patients with incarcerated hernia.[2,3] We report an interesting case of a male newborn with left incarcerated inguinal hernia.

CASE REPORT

A one month old boy of 3.5 kg came to emergency with an incarcerated left inguinal hernia. Physical examination showed a small, not communicant hydrocele on the right side. After unsuccessful manual reduction, we decided to perform a laparoscopic exploration. The operation was performed under general anaesthesia. We used a 10 mm 0° optic and two 3-mm instruments in triangulation. Pneumoperitoneum pressure was 6 mmHg. Laparoscopic examination showed a left hernia with intestinal loops that entered the internal inguinal ring, on the right side there was the patency of the peritoneo-vaginal duct with the appendix completely incarcerated into the hernial sac (Amyand's hernia) [Figures 1 and 2].

On the left side, the loops were reduced by applying a combined technique of external manual pressure and internal pulling by forceps, and the bowel was inspected.

After complete reduction, which is easily controlled visually during laparoscopy, the formerly incarcerated loops were inspected for ecchymosis and peristalsis. The hernia was repaired according to Montupet's procedure with a 3/0 non resorbable suture. The Montupet's herniorraphy involves circumferential sectioning of the periorificial peritoneum distally to internal inguinal ring and then closing the periorificial peritoneum with a purse string suture using non resorbable suture. On the right side, the appendix was strongly adherent with the peritoneal vaginal duct and reduction using only traction was not possible. The appendix was dissected from the sac using a 3-mm monopolar hook and then reduced into the abdomen. A



Figure 1: Intraoperative photograph showing incarceration of the bowel within the left inguinal canal



Figure 2: Intraoperative photograph showing incarceration of the appendix within the right inguinal canal

right herniorrhaphy was then performed according to Montupet's technique. Two days after surgery, the baby had fever and abdominal distension. He was re-operated through mini-Pfannenstiel incision, and an ischemic appendix was identified and removed. Postoperative period was uneventful.

Follow-up was done at 1 week, 1 month and 1 year control. During these follow-ups, there was no recurrence of hernia, and the cosmetical aspect of the skin incision was very good.

DISCUSSION

Inguinal hernia repair is one of the most common operations performed in children.[1,4] In the last few years, there are several reports of laparoscopic treatment of inguinal hernia.[4,5] However, there are only few reports on the treatment of incarcerated hernia in patients in the first year of life.[2,3]

Amyand's hernia is rarely reported in pediatric literature.[6] As we report in our paper, sometimes appendix can be present in the hernial sac, above all in newborns, without clinical manifestation. Laparoscopic approach can easily diagnose and treat this condition.

Laparoscopy is strongly indicated in the first years of life and in patients with an incarcerated inguinal hernia due to the following reasons, (1) contralateral sac can be disclosed in about 50% to 90% of cases (>89% in the first year of life),[4] (2)laparoscopic reduction is more safe compared to blind manual reduction.

The conventional approach to incarceration is manual reduction. It is not risk-free because it refrains from direct visual control.[2] The mechanical damage, caused internally, is never seen, even during subsequent surgery. Therefore, incorrect or incomplete reductions are not uncommon.[3] Subsequent surgical correction is performed 1 or 2 days later and carries an increased risk because it is executed in traumatized anatomy.[2,3] The total procedure may keep the child in hospital for 3-4 days.[2,3] In contrast, the laparoscopic approach to incarcerated inguinal hernia profits by intra-abdominal insufflation, which mechanically widens the internal inguinal ring, thus facilitating reduction. The procedure allows for direct and unrestricted visual control. All organs involved can be inspected immediately for mechanical damage along with reduction. In the same session, the inguinal hernia is repaired laparoscopically.

In addition, we can discover a contralateral unknown complication as happened in our case of Amyand's hernia.

The diagnosis of Amyand's hernia, defined as the appendix located in the inguinal canal, was first described and treated in an 11-year-old boy by Claudius Amyand in 1735. The incidence of this hernia is rare and reported to occur in 0.1% of all cases of appendicitis. The hernia itself does not present with a specific group of signs or symptoms, making the preoperative diagnosis difficult, and laparoscopy is the best way to diagnose this rare condition.

From a technical point of view, thanks to the easy availability of 3-mm instruments and improved laparoscopic skills. There is no additional risk in operating a boy in the first months of life for an inguinal hernia using laparoscopic technique, and therefore we have started performing laparoscopy in a large number of children.

The main advantage of treating inguinal hernia via laparoscopy in the first year of life is the possibility to discover a contralateral patency and thereby reduce the chance to develop a metacronus contralateral hernia as it happens after inguinal herniorrhaphy.

We believe that laparoscopic repair of inguinal incarcerated hernia in the first months of life by expert hands is logical, safe and very effective. Laparoscopy in our case facilitated simultaneous reduction under direct visual control, inspection of the incarcerated organ, definitive repair and incidentally discovery and treatment of the contralateral complicated Amyand's hernia.

In case of incarcerated appendix, it is preferable to perform an appendectomy during the same procedure to reduce the incidence of postoperative complications.

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